ABSTRACT

INTRODUCTION:

Vitamin D deficiency or insufficiency is currently a global pandemic affecting some one billion of all ages and ethnic groups. Gestational vitamin D deficiency is common. Reports from developing (such as Bangladesh, India, Iran, Pakistan, Somalia) as well as developed countries (such as Australia, Finland, Japan, the Netherlands, United Kingdom and USA) show a high prevalence of vitamin D deficiency.

Maternal vitamin D deficiency in early pregnancy has been associated with elevated risk of gestational diabetes mellitus. Other associations with maternal vitamin D deficiency include increased risk of pre-eclampsia, preterm birth, low birth weight and cesarean section and anemia. A positive correlation has been seen between maternal and child vitamin D levels. Vitamin D has direct effects on the innate as well as adaptive immune systems. Vitamin D has an increasingly recognised repertoire of classical action (calcium metabolism) and nonclassical actions (insulin action and secretion, immune modulation and lung development). It therefore has the potential to influence many factors in the developing fetus.The present study demonstrated a significantly greater risk of anemia in pregnant women with severe vitamin D deficiencythan that in normal groups. There is a significant correlation between vitamin D deficiency andanemia.There is little information on vitamin D intake in pregnancy and lactation and few studies on clinical outcomes.

The prevalence of Gestational diabetes mellitus (GDM) is increasing globally and India is no exception. According to random National Survey in India (2004), prevalence of GDM is 16.55% and in a hospital survey in 2008, it was found to be 21.6% with GDM and impaired glucose tolerance combined. The known risk factors for GDM include maternal overweight and obesity, race/ethnicity, prior history of GDM, family history of T2DM, history of previous fetal death, macrosomic infant, and increasing maternal age. Recently, it has been found that vitamin D receptors are expressed in large number of other tissues including those involved in the regulation of glucose metabolism, such as muscle and pancreatic beta cells. Therefore it was hypothesised that GDM might result from pregnancy induced insulin resistance and impaired secretion to compensate for it. It is pertinent to establish a fool proof association between maternal Vitamin D deficiency and GDM, its exact mechanism, and to knowthe impact of vitamin D supplementation and its dosage during pregnancy among different sets of population through large case control studies. There is also a gap in

knowledge on optimal dosing for pre-existing vitamin D deficiency and the optimal gestational age at which to start the supplementation. Further studies are required during pregnancy not only for maternal skeletal preservation and fetal skeletal formation but also for fetal imprinting that may affect neurological development, immune function, and chronic disease susceptibility soon after birth as well as later in life.

METHODOLOGY

Study design: Prospective longitudinal observational study

Study Population: All low risk antenatal mothers as control group and Gestational diabetes mother as study group admitted in PSG hospital – labour ward.

Study Locale (geographic area): Department of obstetrics and Gynaecology- Ward

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Sample Size: With reference -Vitamin D status and gestational diabetes mellitus

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DOI: 10.4103/2230-8210.163175

FORMULA

N =2x(2alpha +2 beta)2 x SD2 = 445.21

Result= 27 in each group.
So approximate taking 30 in each group.

Sampling Method:

All pregnant mothers visiting labour ward will be selected randomly as control group and Gestational diabetes mother as study group. Patients will be randomly allocated to either one of the 2 groups. Hospital based prospective study.

RESULTS:

Vitamin D levels were compared between GDM patients and normal patients.The comparison of vitamin D levels between GDM and low risk antenatal patients showed statistically insignificant results because i had included only GDM patients who were on diet, need further studies.In both groups vitamin D level is deficient due to changing lifestyle.Women with GDM associated with Vitamin D deficiency tend to present at an earlier gestational age for delivery with complaints of abdominal pain/PROM than normal patients.Women with low vitamin D levels had prolonged duration of labour when compared to low risk women which is statistically significant.There is insignificant association observed between Body Mass Index and Vitamin D status. The association of antenatal maternal vitamin D status with birth weight of neonate yields insignificant relationship.

CONCLUSION:

Prevalence of Vitamin D deficiency is alarmingly high in pregnant women in India and has become a re-emerging public health issue. There are some limitations that should be noted. The sample size taken was small and hence a large randomized controlled trial is necessary to determine the vitamin D levels in pregnancy and to draw guidelines regarding screening and supplementation.. The comparison of vitamin D levels between GDM and low risk antenatal patients showed statistically insignificant results because i had included only GDM patients who were on diet, need further studies.

KEY WORDS: GDM- Gestational Diabetes Mellitus, T2DM - Type II Diabetes Mellitus, PROM- Prelabour rupture of membrane,